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Datasheet for the decision of 12 March 2008

Case Number: T 0222/06 - 3.4.03

Application Number: 98114333.2

Publication Number: 0875866

IPC: G07D 7/00

Language of the proceedings: EN

Title of invention:
Method and apparatus for discriminating and counting documents

Patentee:
CUMMINS-ALLISON CORPORATION

Opponent:
DE LA RUE INTERNATIONAL LIMITED
GIESECKE & DEVRIENT GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0222/06 - 3.4.03

D E C I S I O N
of the Technical Board of Appeal 3.4.03
of 12 March 2008

Appellant: (Opponent)
DE LA RUE INTERNATIONAL LIMITED
De La Rue House, Jays Close
Viables
Basingstoke
Hants RG22 4BS (GB)

Representative:
Skone James, Robert Edmund
Gill Jennings & Every LLP
Broadgate House
7 Eldon Street
London EC2M 7LH (GB)

(Opponent)
GIESECKE & DEVRIENT GmbH
Prinzregentenstr. 159
D-81677 München (DE)

Representative:
-

Respondent: (Patent Proprietor)
CUMMINS-ALLISON CORPORATION
891, Freehanville Drive
Mount Prospect
Illinois 60056 (US)

Representative:
Grünecker, Kinkeldey
Stockmair & Schwanhäusser
Anwaltssozietät
Maximilianstrasse 58
D-80538 München (DE)

Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 6 December 2005 concerning maintenance of European patent No. 0875866 in amended form.

Composition of the Board:

Chairman: R. G. O'Connell
Members: G. Eliasson
J. Van Moer

Summary of Facts and Submissions

I. This is an appeal by opponent O1 as sole appellant against the proposed maintenance of EP 0 875 866 in amended form.

II. The following prior art documents, among others, were considered in the decision under appeal

E1: WO 93 23 824 A
E6: US 4 516 264 A
E14: US 4 356 473 A.

III. Claim 1, which the opposition division found to meet the requirements of the EPC, reads:

"1. A currency scanning and counting machine for scanning and identifying bills (17) at a rate in excess of 800 bills per minute, comprising:
an input receptacle (12) for positioning stacks of currency bills to be identified;
a single output receptacle (20) for stacking the processed bills;
a bill separation station (14) for acting upon the bills in the input receptacle (12) to separate one bill at a time for being sequentially relayed by a bill transport mechanism (16);
whereby the bill transport mechanism (16) transports the bills from the input receptacle (12) to the output receptacle (20);
characterised by
a pair of optical scanheads (18A, 18B) disposed on opposite sides of the transport path defined by the bill transport mechanism (16), the pair of

optical scanheads (18A, 18B) scanning and identifying the currency denomination of a bill; means for determining the face orientation of a bill and means for comparing a scanned pattern of one side of a bill only to a master pattern from a corresponding side."

IV. Oral proceedings were held before the board in the forewarned absence of opponent O2. The latter neither presented any submissions nor made any requests in the appeal procedure.

The other parties made the following requests at the oral proceedings:

Appellant opponent O1 requested that the decision under appeal be set aside and the patent revoked.

The respondent proprietor requested that the appeal be dismissed.

V. The arguments of appellant opponent O1 can be summarised as follows:

(a) The subject matter of claim 1 lacked an inventive step over document E1 and common general knowledge in the art:

The device of claim 1 differed from that of document E1 by (i) a pair of optical scan heads disposed on opposite sides of the transport path; and (ii) means for determining the face orientation of a bill and means for comparing a scanned pattern of one side of a bill only to a

master pattern from a corresponding side. It followed from paragraph 36 of the patent referring to one-sided and two-sided scanning systems that there was no link between the respective problems solved by features (i) and (ii) so that they could be treated separately in the assessment of inventive step.

As regards feature (i), it was acknowledged in the patent specification that it was common general knowledge in the art of automated scanning of currency bills to use a pair of optical scan heads disposed on opposite sides of the bill transport path (paragraph 14 of the patent). It was accordingly obvious for the person skilled in the art to modify the apparatus of document E1 to include a pair of optical scan heads.

As regards feature (ii), it was explained in document E1 that for US currency, master patterns were recorded only for the green face of the currency bills (page 4, lines 8 to 12; page 11, lines 23 to 31). Thus it would be evident to the skilled person that the apparatus of document E1 had the drawback that the bills to be processed had to be presented face oriented and that this drawback could be overcome by including means for determining said face orientation in a two-sided scanning system.

(b) Additionally or alternatively the subject matter of claim 1 was obvious over a combination of documents E1 and E6:

Document E6 disclosed an apparatus having a pair of optical scan heads for identifying addresses on envelopes related to processing of mail, ie documents of value. It taught the advantage of identifying the face orientation of the envelopes as this information could be used to enable the appropriate scanner (Figure 3, column 4, lines 40 to 49; column 5, lines 45 to 50). Hence the skilled person faced with the task of improving the apparatus of document E1 so as to allow processing of bills without the need to ensure that the bills are fed into the machine in a known face orientation would learn from document E6 not only to use a pair of optical scan heads but also to introduce means for determining the face orientation of the incoming bills.

(c) The subject matter of claim 1 was also obvious over a combination of documents E1 and E14:

Document E14 taught how to identify the location of a pattern profile using two optical scan heads located on the same side of the bill transport path where the first scan head on the transport path locates the feature which is to be compared with master patterns (column 1, lines 57 to 58; column 2, lines 36 to 41; column 4, lines 38 to 44). Thus document E14 taught a two-step process of identifying the edge orientation before scanning the feature to be compared with master patterns. Faced with the task of improving the apparatus of document E1 so as to allow processing of bills without the need to ensure that the bills are fed into the machine in a known face

orientation, the skilled person would as a matter of course adopt from the common general knowledge in the art the measure of introducing a second optical scan head opposite to the first scan head in the apparatus of document E1. Furthermore, the skilled person would appreciate that the two-step process known from document E14 would be useful for determining the face orientation of the bill so as to enable only the appropriate scan head.

VI. The arguments of the respondent proprietor can be summarised as follows:

(a) The devices previously known in the art using two scan heads were machines for counting and *sorting* bills, ie. much larger machines than the desk-top machine of document E1. Even if the skilled person were to introduce a second optical scan head to the apparatus of document E1, there would be no reason to identify the face orientation of the bill, since the machine would also work without this measure.

(b) There was no indication that the teaching of document E6 could be applicable to bank notes as the machines used for mail sorting were orders of magnitude larger than the apparatus of document E1. Furthermore, it was not clear whether the Facer-Canceller-Culler machine mentioned in document E6 would be useful for transmitting information about the face orientation, since the envelopes would leave conventional Facer-Canceller-Cullers in a face-oriented state.

(c) Both optical scan heads in the apparatus of document E14 were positioned on the same side of the transport path. Hence the use of scan heads on opposite sides was not taught.

Reasons for the Decision

1. The appeal is admissible.

2. The sole issue is inventive step.

3. *Prior art*

3.1 It is common ground that document E1 represents the closest prior art. It discloses a currency scanning and counting machine for processing bills, ie banknotes, at a rate in excess of 800 bills per minute. A stack of currency bills to be identified is positioned in an input receptacle 12 from which the bills are separated one bill at a time to be sequentially relayed by a bill transport mechanism 16 which transports the bills to a single output receptacle 20 where the processed bills are stacked (E1, Figure 1 with accompanying text). In order to identify the bills, the apparatus of document E1 includes a single optical scan head 18 and means for comparing the scanned pattern to a set of master patterns taken from one face of the bills (Figure 1; page 11, line 23 to page 12, line 13). For each denomination a "forward" and a "reverse" master pattern is stored. Each bill is compared to all master patterns. The master patterns are available for only one face of the bills; in the concrete example of USD bills, it the face printed with green ink (page 4, lines 8 to 23).

3.2 The device of claim 1 differs from that of document E1 by

(i) a pair of optical scan heads disposed on opposite sides of the transport path defined by the bill transport mechanism, the pair of optical scan heads scanning and identifying the currency denomination of a bill, whereas document E1 discloses only a single optical scan head; and

(ii) means for determining the face orientation of a bill and means for comparing a scanned pattern of one side of a bill only to a master pattern from a corresponding side.

3.3 Document E6 discloses an apparatus for scanning and analyzing mail in which optical scanners 22A, 22B are provided on opposite sides of the path of the letters (Figure 1). An envelope approaching the device along the transport path has already been determined to be either stamp down and trailing or stamp down and leading. This information is utilised to select an output signal from one of the two optical scanners (cameras) 110A, 110B (E6, Figure 4A, column 4, lines 40 to 49; column 5, lines 45 to 51).

3.4 Document E14 discloses a bill discrimination device in which a first sensor 26 determines the edge orientation of the bill (Figure 2). The appropriate track of a second sensor 27 is selected which is over the midline of the bill for subsequent comparison (column 4, lines 38 to 44). Both sensors are arranged on the same side of the bill transport path. Thus, the currency

bills to be processed have to be presented face oriented.

4. *Inventive step*

4.1 The device of document E1 has the disadvantage that it is necessary to present the currency bills to be counted in a face oriented manner so that the optical scan head faces the "green" surface of the bills.

The technical problem addressed by the claimed invention thus relates to improving the efficiency and speed of scanning currency bills without the need to ensure that the bills are presented face oriented.

4.2 Appellant opponent O1 submitted a three-pronged argument to the effect that the claimed subject matter was obvious in the light of either (a) document E1 in combination with common general knowledge in the art; (b) documents E1 and E6; or (c) documents E1 and E14 (item V above).

4.3 *(a) Document E1 and common general knowledge in the art*

4.3.1 As acknowledged in the patent, it was known in the art to provide currency scanning and counting machines with a pair of optical scan heads on opposite sides of the bill transport path (paragraph 14 of the patent).

4.3.2 The appellant opponent O1 argued in this context that since the apparatus of document E1 had master patterns for only one face of the currency bills, this apparatus had the evident drawback of requiring the bills to be presented face oriented. The skilled person starting

from E1 and seeking to solve the problem stated above would thus arrive at the claimed device using the above common general knowledge in the art (item V(a) above).

4.3.3 This argument appears to gloss over the fact that means for determining the face orientation of a bill is a feature of the claim. It is, in the judgement of the board, indeed plausible that the person skilled in the art seeking to solve the problem stated above would consider introducing a second optical scan head on the opposite side of the bill transport path from the first optical scan head. As observed by the respondent proprietor, however, the straightforward solution within the constraint of not requiring longer time for identifying the currency denomination would be to compare in parallel the scanned pattern from both optical scan heads with the same master pattern (item VI(a) above). This approach would be straightforward as it would not need any means for determining the face orientation of the bill. It needs to be borne in mind that since the apparatus of document E1 requires the bills to be presented face oriented, the problem of determining face orientation does not arise and is unsurprisingly neither addressed nor solved in that document.

4.4 *(b) Combination of documents E1 and E6*

4.4.1 Starting from document E1, appellant opponent O1 argued, the skilled person would learn from document E6 that, in an arrangement with a pair of optical scan heads on opposite sides of a transport path, it was an advantage to determine the face orientation of an incoming envelope so that only the optical scan head facing the

obverse face of the envelope was enabled (item V(b) above). In this way a combination of E1 and E6 would yield the claimed device.

4.4.2 Although the board agrees with respondent opponent O2 that document E6 teaches enabling only one optical scan head in accordance with the face orientation of the object to be scanned, the information on the face orientation of the envelope is provided by another device located upstream of the envelope transport path, namely a so-called Facer-Canceller-Culler (column 4, lines 40 to 49). Thus, if the skilled person were to implement the teaching of document E6 and add a second optical scan head to the apparatus of document E1, they would also introduce an additional stage upstream of the optical scan heads for detecting the face orientation of the bills. As document E6 relates to the handling of mail, the means suggested in document E6 (using a Facer-Canceller-Culler) are completely unsuitable for a desk-top currency scanning and counting machine of the type disclosed in document E1. Secondly, document E6 relates to the handling of mail which admittedly could be regarded as handling documents of value. The step analogous to the step of identifying currency bills, ie the step of identifying and cancelling the postal stamp affixed to the envelope, is carried out by the above-mentioned Facer-Canceller-Culler. The device disclosed in document E6 on the other hand has the task of evaluating the address written on the envelope, a task remote from that of validating security documents such as currency bills. Furthermore, there is no suggestion in the prior art of simple and efficient means for determining the face orientation of a currency bill. For these reasons, the

board judges that a skilled person faced with the task of improving the device of document E1 would not take the teaching of document E6 into consideration.

4.5 *(c) Combination of documents E1 and E14*

4.5.1 Appellant opponent O1 argued in this connection that document E14 taught how to identify the location of a pattern profile on a currency bill by using an additional optical scan head preceding the optical scan head used for scanning a predetermined pattern on a bill. A skilled person combining this teaching with common general knowledge in the art of using two optical scan heads on opposite sides of the bill transport path would arrive at the claimed subject matter (item V(c) above).

4.5.2 Although the board acknowledges that document E14 teaches locating a pattern on a bill, this is not in the context of determining the face orientation, since the device of document E14, similarly to that of document E1, requires the bills to be presented face oriented at the input receptacle. Secondly, the additional optical scan head is used for determining whether the bill moves in a "forward" or "reverse" direction, a problem which does not arise in the apparatus of document E1, since master patterns for each currency denomination are stored for both directions (E1, page 4, lines 10 to 12). Therefore, the board does not see any reason for the skilled person to consider the teaching of document E14 for the purpose of improving the device of document E1.

4.6 For the above reasons, in the board's judgement, the subject matter of claim 1 involves an inventive step within the meaning of Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

Registrar Chair

S. Sánchez Chiquero R. G. O'Connell